

Office Action Summary	Application No. 10/593,986	Applicant(s) KLUGE ET AL.	
	Examiner DANIEL BERNS	Art Unit 1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-10,13,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-10,13,15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>20110120</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

Art Unit: 1734

DETAILED ACTION

Continued Examination under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's 2/4/11 submission has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. In considering the obviousness rejections below, the applicant should note that the person having ordinary skill in the art at the time of the invention has the capability of understanding the

Art Unit: 1734

scientific and engineering principles applicable to the claimed invention. The references of record in the application reasonably reflect this level of skill.

6. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch et al., Pre-grant Pub. No. US 2003/0125202 (published 7/3/03) ("Ruwisch").

Regarding claim 1 as amended, Ruwisch teaches a nitrogen oxide ("NO_x") storage catalyst comprising an Mg/Al mixed oxide support material doped with rare earth oxide and comprising a NO_x storage component supported thereon, forming a NO_x storage material. See id. at, e.g., par. 16, 38, 42-44, 46 and 48; Tables 2-3; Ex. 1-7. Ruwisch teaches that employing Mg/Al oxide as a support for NO_x storage materials such as BaO or SrO may "lead to a significant improvement of the NO_x storage efficiency." See Ruwisch at par. 38. Given such a teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select and employ Mg/Al oxide as Ruwisch's NO_x storage component support (i.e., second portion of the support material).

Ruwisch also suggests a 1-30 wt. % MgO range within the NO_x storage material's Mg/Al mixed oxide support as claimed. See id. at par. 16. Ruwisch's NO_x storage catalyst further comprises a catalytically-active Pt noble metal-comprising coating upon a homogeneous Mg/Al mixed oxide support material (i.e., first portion of the support material). See id. at par. 16, 43-44 and 47; Table 3; Ex. 1-7. A 1-40 wt. % MgO range within the catalytically-active Pt's homogeneous Mg/Al mixed oxide support (first) portion is likewise suggested by Ruwisch as claimed. See id. at par. 16. Ruwisch's catalyst is coated on an inert honeycomb made of ceramic or metal. See id. at par. 8 and 61; clm. 23.

Lastly, Ruwisch teaches that its noble metal component and NO_x storage component are impregnated/dispersed upon separate portions of the overall support material. See id. at, e.g.,

Art Unit: 1734

Table 3. While Table 3's examples mainly employ a Ce/Zr oxide as a support for its NO_x storage component, given Ruwisch's teaching of the substitutability of Mg/Al oxide for Ce/Zr oxide, see *id.* at par. 48, such a substitution would have been obvious to one of ordinary skill in the art at the time the invention was made- selecting between two or more materials or processes is an obvious choice if their equivalence for the given purpose was known in the art when the invention was made. See MPEP 2144.06 II. Further, "[a]n express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious." *Id.*, citing *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

Regarding claim 2, Ruwisch teaches oxides, carbonates or hydroxides of Sr, Ba, and/or mixtures thereof as suitable NO_x storage components. See *id.* at par. 36-38 and 48; clm. 8.

Regarding claims 3 and 4, Ruwisch teaches oxides of Ce, Nd, Sm, Pr, and/or mixtures thereof as suitable rare earth oxides. See *id.* at par. 42 and 48; Table 3; Ex. 1-7.

Regarding claim 5, Ruwisch teaches the inclusion of ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ within its NO_x storage component's support composition. See *id.* at par. 49. While Ruwisch states that the La₂O₃ and/or Pr₂O₃ are doped upon a Ce/Zr mixed oxide support, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO_x storage component's support (see *id.* at par. 48), one of ordinary skill in the art at the time of the invention could have reasonably concluded that the ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ dopant would likewise have been appropriate for an Mg/Al mixed oxide serving as the NO_x storage component's support. Additionally or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ dopant to an Mg/Al mixed oxide serving as the NO_x storage

Art Unit: 1734

component's support, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO_x storage component's support.

Regarding claim 8, Ruwisch teaches the optional presence of Pd along with the Pt coating previously discussed, i.e., upon the support material's first portion. See *id.* at par. 43-44; Table 3; Ex. 2 and 4-7.

Regarding claims 9 and 10, Ruwisch teaches the optional presence of Rh-coated alumina, i.e., a third portion of the overall support material, within its NO_x storage catalyst. See *id.* at par. 45; Table 3; Ex. 3-7.

7. Claims 1, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch in view of Strehlau et al., US 6,350,421 (2002) ("Strehlau"). Regarding claim 1, Ruwisch's teachings are as above. Regarding claims 13 and 15, the difference between the claims and Ruwisch is that the latter does not explicitly teach the presence of its NO_x storage component in a 3-25 (as in claim 15) or 5-10 wt. % range (as in claim 13). These limitations, however, are taught by Strehlau.

Strehlau teaches a NO_x storage catalyst comprising a K, Cs, Ba, Mg, Ca, or Sr oxide, carbonate, or hydroxide NO_x storage component upon a rare earth metal-doped or bi-metallic support, similar to Ruwisch's NO_x storage material. See Strehlau at col. 4, ln. 55 to col. 5, ln. 26. Strehlau teaches the desirability of employing a NO_x storage component in amounts of 10-45 wt. % in relation to the NO_x storage catalyst's overall weight. See *id.* at col. 5, ln. 60-63. Given Strehlau's statement of the effectiveness of employing 10-45 wt. % NO_x storage component, and the fact that said range touches and/or overlaps those claimed, the latter are rendered *prima facie* obvious thereby as it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 1734

invention was made to employ such amounts of NO_x storage component as taught by Strehlau within Ruwisch's overall catalyst. See, e.g., *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) (holding that a prima facie case of obviousness exists where claimed ranges "overlap or lie inside ranges disclosed by the prior art"); MPEP § 2144.05.

8. Claims 1-5, 8-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch in view of Deeba et al., US 5,874,057 (1999) ("Deeba"). Alternatively regarding claim 1 as amended, Ruwisch teaches a nitrogen oxide ("NO_x") storage catalyst comprising an Mg/Al mixed oxide support material doped with rare earth oxide and comprising a NO_x storage component supported thereon, forming a NO_x storage material. See *id.* at, e.g., par. 16, 38, 42-44, 46 and 48; Tables 2-3; Ex. 1-7. Ruwisch teaches that employing Mg/Al oxide as a support for NO_x storage components such as BaO or SrO may "lead to a significant improvement of the NO_x storage efficiency." See Ruwisch at par. 38. Given such a teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select and employ Mg/Al oxide as Ruwisch's NO_x storage component support (i.e., second support material).

A 1-30 wt. % MgO range within the NO_x storage component's Mg/Al mixed oxide support is suggested by Ruwisch as claimed. See *id.* at par. 16. Ruwisch's NO_x storage catalyst further comprises a catalytically-active Pt noble metal-comprising coating upon a homogeneous Mg/Al mixed oxide support material (i.e., first portion of the support material). See *id.* at par. 16, 43-44; Table 3; Ex. 1-7. A 1-40 wt. % MgO range within the catalytically-active Pt's homogeneous Mg/Al mixed oxide (first) support portion is likewise suggested by Ruwisch as claimed. See *id.* at par. 16. Ruwisch's catalyst is coated on an inert honeycomb made of ceramic or metal. See *id.* at par. 8 and 61; clm. 23. Should it be argued that Ruwisch differs from

Art Unit: 1734

amended claim 1 in that Ruwisch does not explicitly appear to teach that first and second support material portions, wherein only the first support material contains the noble metal, these limitations are taught by Deeba.

Deeba teaches a catalyst composition comprising i) a Pt catalytic component and ii) a NO_x sorbent (i.e., storage) component supported upon an appropriate oxidic support, wherein i) and ii) are segregated from each other by not being dispersed on the same increment/portion of support. See Deeba at col. 2, ln. 66 to col. 3, ln. 35 and col. 5, ln. 14-24. Deeba further teaches that its Pt catalytic component may comprise additional Pt-group metals, and that its NO_x sorbent component may further comprise rare earth oxides such as ceria. See id. at col. 3, ln. 36-44. Deeba teaches that segregating components i) and ii) as detailed above yields “an exceedingly effective and durable composition for the abatement of NO_x in a gas stream[.]” See id. at col. 6, ln. 18-41. Given such an advantageous result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ruwisch’s catalyst by deploying its catalytic Pt component and NO_x storage component upon separate support portions to segregate the components as taught by Deeba.

Regarding claim 2, Ruwisch teaches oxides, carbonates or hydroxides of Sr, Ba, and/or mixtures thereof as suitable NO_x storage components. See id. at par. 36-38 and 48; clm. 8.

Regarding claims 3 and 4, Ruwisch teaches oxides of Ce, Nd, Sm, Pr, and/or mixtures thereof as suitable rare earth oxides. See id. at par. 42 and 48; Table 3; Ex. 1-7.

Regarding claim 5, Ruwisch teaches the inclusion of ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ within its NO_x storage component’s support composition. See id. at par. 49. While Ruwisch states that the La₂O₃ and/or Pr₂O₃ are doped upon a Ce/Zr mixed oxide support

Art Unit: 1734

material, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO_x storage component's support (see *id.* at par. 48), one of ordinary skill in the art at the time of the invention could have reasonably concluded that the ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ dopant would likewise have been appropriate for an Mg/Al mixed oxide serving as the NO_x storage component's support. Additionally or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a ~0.5 to ~10 wt. % La₂O₃ and/or Pr₂O₃ dopant to an Mg/Al mixed oxide serving as the NO_x storage component's support, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO_x storage component's support.

Regarding claim 8, Ruwisch teaches the optional presence of Pd along with the Pt coating previously discussed, i.e., upon the support material's first portion. See *id.* at par. 43-44; Table 3; Ex. 2 and 4-7.

Regarding claims 9 and 10, Ruwisch teaches the optional presence of Rh-coated alumina, i.e., a third portion of the overall support material within its NO_x storage catalyst. See *id.* at par. 45; Table 3; Ex. 3-7.

Regarding claim 16, Deeba suggests a NO_x storage component comprising BaO and a catalytically active component comprising Pt, wherein bulk ceria is employed, i.e. ceria being present in conjunction with both the first and second support materials. See Deeba at, e.g., col. 3, ln. 35-44 and 51-58, col. 4, ln. 6-14. Deeba further teaches the suitability of employing ceria with a) its Pt and optional additional Pt-group metal catalyst component, and b) its NO_x storage component. See *id.* at col. 3, ln. 43-44 and 51-58, col. 6, ln. 35-41 and col. 9, ln. 1-13. Given the

Art Unit: 1734

foregoing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ an overall catalyst composition wherein its 1st support material portion (i.e., containing the Pt component and other optional Pt-group metals) further comprises ceria and its 2nd support material portion (i.e., containing the NO_x storage component) further comprises ceria and BaO. Accord, *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 335, 65 USPQ 297, 301 (1945) (“Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle.”); MPEP 2144.07.

9. Claims 1, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch in view of Deeba (collectively, “R/D”), further in view of Strehlau. Regarding claim 1, R/D’s collective teachings are as above. Regarding claims 13 and 15, the difference between the claims and R/D is that the latter does not explicitly teach the presence of its NO_x storage component in a 3-25 (as in claim 15) or 5-10 wt. % range (as in claim 13). These limitations, however, are taught by Strehlau.

Strehlau teaches a NO_x storage catalyst comprising a K, Cs, Ba, Mg, Ca, or Sr oxide, carbonate, or hydroxide NO_x storage component upon a rare earth metal-doped or bi-metallic support, similar to Ruwisch’s NO_x storage catalyst. See Strehlau at col. 4, ln. 55 to col. 5, ln. 26. Strehlau teaches the desirability of employing a NO_x storage component in amounts of 10-45 wt. % in relation to the NO_x storage catalyst’s overall weight. See *id.* at col. 5, ln. 60-63. Given Strehlau’s statement of the effectiveness of employing 10-45 wt. % NO_x storage component, and the fact that said range touches and/or overlaps those claimed, the latter are rendered *prima facie* obvious thereby as it would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 1734

invention was made to employ such amounts of NO_x storage component as taught by Strehlau within R/D's overall catalyst. In re Wertheim; MPEP § 2144.05.

Response to Amendment

10. Applicant's 2/4/11 claim amendments have overcome all rejections under 35 U.S.C. 112.

Response to Arguments

11. Applicant's 2/4/11 arguments have been fully considered but they are not persuasive.

Regarding applicant's assertion of unexpected, advantageous results due to alleged differences between the claimed catalyst and those within the prior art, it is noted that the features upon which applicant relies (i.e., supporting a NO_x storage component upon homogeneous Mg/Al oxide) are not recited in the rejected claims. Only the oxidation-active component is claimed to be supported upon homogeneous Mg/Al oxide (i.e., the first portion of the support material); no limitation regarding homogeneity of the NO_x storage component's support (i.e., the second portion of the support material) is claimed. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicant's assertions regarding the NO_x storage component vs. NO_x storage material dichotomy, the foregoing rejections have been altered as appropriate to account for the differences in terminology. Further, applicant's argument that "Ruwisch does not suggest using Mg/Al oxide as a second portion of the support material for the nitrogen oxide storage component" (emphasis by applicant) is incorrect: Ruwisch does indeed suggest supporting its NO_x storage component upon Mg/Al oxide, as detailed above. See Ruwisch at par. 48.

Applicant's statement that Ruwisch's par. 44 allows for deposition of some Pt upon its NO_x storage material, which would be prohibited by instant claim 1, is moot: Ruwisch states this

Art Unit: 1734

to be an optional feature (“...platinum can be deposited directly on the nitrogen oxide storage material”) (emphasis added), and thus can be ignored vis-à-vis Ruwisch’s handling of the claims.

Regarding applicant’s argument that Ruwisch does not make obvious the unexpectedly-enhanced thermal durability of applicant’s overall catalyst, said argument is not commensurate with the claims’ scope, as said durability is not claimed. Features from the specification are not read into the claims. See *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted “in view of the specification” without importing limitations from the specification into the claims unnecessarily); MPEP 2106 II.C.

Further, given the obviousness of employing homogeneous Mg/Al oxide as both the first and second support materials as stated above, the improved thermal durability would have been an obvious and/or inherent property of the resulting catalyst. This conclusion of obviousness and or inherency is buttressed by the Federal Circuit’s holding that “[w]hen a chemical composition is claimed, a prima facie case of obviousness under Section 103 may be established by [the prior art’s teaching of] a similar composition, the presumption being that similar compositions have similar properties.” See, e.g., *In re Soni*, 54 F.3d 746, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995) (internal citations omitted); *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985); MPEP 2112.01 (inherency).

Lastly, applicant’s asserted unexpected results are indeed already clearly predicted by Ruwisch, which states that Mg/Al mixed oxides possess improved thermal durability as compared to γ -Al₂O₃, and that even further thermal durability can be achieved by impregnating the mixed oxide with rare earth oxides, i.e. of Ce and/or Pr. See Ruwisch at par. 39 and 42. Even if it were not so, the fact that applicant has recognized another advantage which would

Art Unit: 1734

flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Regarding combinability of Strehlau and/or Deebea with Ruwisch, applicant appears to argue that i) the references are non-combinable, and/or ii) even if combined, they would not yield the unexpectedly-enhanced thermal durability of applicant's overall catalyst. Regarding i), a motivation to combine was indeed detailed above, as required. Applicant's attention is drawn to Item Nos. 7-9, above. It matters not if/whether the Examiner applied a different rationale or found a different advantage in combining references than that asserted by applicant- the issue is simply whether combination would have been obvious to one of ordinary skill in the art at the time the invention was made. *Ex parte Obiaya*; *Lantech Inc. v. Kaufman Co. of Ohio Inc.*, 878 F.2d 1446, 12 USPQ2d 1076, 1077, cert. denied, 493 U.S. 1058 (1990) (unpublished) (stating that "[t]he recitation of an additional advantage associated with doing what the prior art suggests does not lend patentability to an otherwise unpatentable invention"); MPEP 2145 II.

Regarding ii), this argument has been rebutted vis-à-vis rejections solely based upon Ruwisch, detailed above. *E-Pass Techs.*; *In re Soni*; *Titanium Metals*; *Ex parte Obiaya*; MPEP 2106 II.C.; MPEP 2112.01; MPEP 2145 II.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL BERNIS whose telephone number is (571)270-5839. The examiner can normally be reached on Monday thru Thursday, 9AM-6PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emily Le can be reached at (571)272-0903. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1734

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./ March 4, 2011

Examiner, Art Unit 1734

/Emily M Le/

Supervisory Patent Examiner, Art Unit 1734